Remarks

Claims 1-33 are pending. Claims 8, 24, and 30 are amended herein. The objection to the drawings is answered below. Applicants respectfully traverse the rejection and request allowance of claims 1-33.

This document is submitted in order to address objections not answered in the Response submitted on November 8, 2007, regarding to the Office Action mailed on August 14, 2007. This document addresses the two outstanding items from the Office Action.

The Office Action asserts that the drawing objections regarding claims 17-31 in the previous Office Action (mailed 8/14/07) were not fully responded to by Applicants. In the previous Office Action, the drawings were objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims.

35 U.S.C. § 112, sixth paragraph states that a claim limitation expressed in means-plus-function language "shall be construed to cover the corresponding structure ... described in the specification and equivalents thereof." MPEP § 2181(II). The corresponding structure must be disclosed in the specification itself in a way that one skilled in the art will understand what structure will perform the recited function. Id. With the foregoing in mind, Applicant submits that the corresponding structure of every means plus function element recited in the claims is in fact already shown in the drawings.

Independent claim 17

In particular, the "means for determining an initial flexural stiffness of a component of said flow meter" in independent claim 17 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, and see step 240 of FIG. 2 and the accompanying text at page 6, lines 14-15). The "means for determining a current flexural stiffness of said component" corresponds to corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see steps 210-230 of FIG. 2 and the accompanying text at page 6, lines 10-14, see steps 310-340 of FIG. 3 and

the accompanying text at page 7, line 24 to page 8, line 15, see steps 410-450 of FIG. 4 and the accompanying text at page 8, line 16 to page 9, line 12, and see steps 510-570 of FIG. 5 and the accompanying text at page 9, line 26 to page 10, line 28). The "means for comparing said initial flexural stiffness to said current flexural stiffness" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see steps 250-270 of FIG. 2 and the accompanying text at page 6, lines 16-18, and see step 650 of FIG. 6 and the accompanying text at page 11, lines 27-28). The "means for detecting a calibration error condition responsive to comparing said initial flexural stiffness to said current flexural stiffness" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 270 of FIG. 2 and the accompanying text at page 6, lines 18-19, see step 350 of FIG. 3 and the accompanying text at page 8, line 15, see step 460 of FIG. 4 and the accompanying text at page 9, lines 13-16, see step 670 of FIG. 6 and the accompanying text at page 11, lines 30-32, and see step 750 of FIG. 7 and the accompanying text at page 14, lines 29-30). These are merely examples and therefore are not exhaustive. Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 18

The "means for signaling said calibration error condition" in dependent claim 18 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see page 6, lines 5-8, and see step 260 of FIG. 2 and the accompanying text at page 6, lines 17-18). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 19

The "means for correcting said flow calibration factor error condition" in dependent claim 19 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see

FIG. 1, see page 6, lines 1-8, see step 270 of FIG. 2 and the accompanying text at page 6, lines 18-19). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 20

The "means for solving a single degree of freedom model" in dependent claim 20 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see page 6, lines 21-24). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 21

The "means for applying a known force to said flow meter component" in dependent claim 21 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see driver 104 of FIG. 1, see page 5, lines 4-6, 11, and 23-32, see page 6, lines 2-4, and se step 210 of FIG. 2 and the accompanying text at page 6, lines 10-11). The "means for means for measuring a resultant deflection of said flow meter component" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see the auxiliary position sensor 107 of FIG. 1, and see step 2720 of FIG. 2 and the accompanying text at page 6, lines 11-13). The "means for determining said flexural stiffnesses responsive to said force and deflection" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see the meter electronics 20 of FIG. 1, and see step 230 of FIG. 2 and the accompanying text at page 6, lines 13-14). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 22

The "means for determining a receptance transfer function" in dependent claim 22 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 310 of FIG. 3 and the accompanying text at page 7, lines 26-27). The "means for calculating an inverse receptance frequency response" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 320 of FIG. 3 and the accompanying text at page 7, lines 27-30). The "means for determining said flexural stiffnesses responsive to said frequency response" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see steps 330-340 of FIG. 3 and the accompanying text at page 8, lines 1-14). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 23

The "means for identifying constants" in dependent claim 23 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 410 of FIG. 4 and the accompanying text at page 8, lines 17-19). The "means for applying a transfer function model to a complex frequency response" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 420 of FIG. 4 and the accompanying text at page 8, lines 19-28). The "means for converting said transfer function from a mobility form to a response form" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 430 of FIG. 3 and the accompanying text at page 8, line 28 to page 9, line 8). The "means for extracting modal parameters from said transfer function" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 440 of FIG. 4 and the accompanying text at page 9, lines 8-10). The "means for calculating flexural

stiffnesses responsive to said modal parameters" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 450 of FIG. 4 and the accompanying text at page 9, lines 11-12 (where flexural stiffness is the k_l term)). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 24

The "means for determining measurement frequencies of interest" in dependent claim 24 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 510 of FIG. 5 and the accompanying text at page9, line 27 to page 10, line 1). The "means for defining a multi-sine excitation signal" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 520 of FIG. 5 and the accompanying text at page 10, lines 2-10). The "means for performing a crest factor minimization" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 530 of FIG. 5 and the accompanying text at page 10, lines 12-14). The "means for defining a total measurement time" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 540 of FIG. 5 and the accompanying text at page 10, line 16). The "means for defining a total number of averages" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 550 of FIG. 5 and the accompanying text at page 10, lines 16-25). The "means for applying said multi-sine to the input of said flow meter component" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 560 of FIG. 10 and the accompanying text at page 10, lines 26-27). The "means for measuring a resultant output responsive to said multi-sine input" corresponds to the meter electronics 20 of the flow meter 5, as configured by an

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appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 560 of FIG. 10 and the accompanying text at page 10, lines 26-27). The "means for determining said transfer function responsive to said multi-sine input and said resultant output" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 570 of FIG. 5 and the accompanying text at page 10, lines 27-28). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 25

The "means for solving a multiple degree of freedom model" in dependent claim 25 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see page 10, line 30 to page 11, line 3). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 26

The "means for generating a response model of said flow meter structure" in dependent claim 26 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see page 11, lines 4-20 and see step 610 of FIG. 6 and the accompanying text at page 11, lines 21-23). The "means for converting said response model to a modal model" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 620 of FIG. 6 and the accompanying text at page 11, lines 23-24). The "means for converting said modal model into a spatial model" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 630 of FIG. 6 and the accompanying text at page 11, line 24). The "means for determining said flexural stiffness from said spatial model" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine

as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 640 of FIG. 6 and the accompanying text at page 11, lines 24-26). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 30

The "means for normalizing model data" in dependent claim 30 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see page 13, line 20 to page 14, line 4). Applicant submits that the disclosure adequately supports this interpretation.

Dependent claim 31

The "means for normalizing said model data with respect to a resonant frequency" in dependent claim 31 corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 720 of FIG. 7 and the accompanying text at page 14, lines 7-10). The "means for normalizing said model data with respect to a reference temperature" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 730 of FIG. 7 and the accompanying text at page 14, lines 11-22). The "means for normalizing said model data with respect to a response variable" corresponds to the meter electronics 20 of the flow meter 5, as configured by an appropriate software routine as disclosed in the various flowcharts (see FIG. 1, see page 6, lines 1-8, see step 740 of FIG. 7 and the accompanying text at page 14, lines 23-28). Applicant submits that the disclosure adequately supports this interpretation.

In view of the foregoing, Applicant submits the corresponding structure for every means plus function recitation is disclosed in the specification itself in a way that one skilled in the art will understand what structure will perform the recited function. Furthermore, Applicant submits that each of the corresponding structures is in fact already shown in the drawings.

The Office Action asserts that the objections to claims 8, 24, and 30 in the previous Office Action (mailed 8/14/07) on the basis of informalities were not fully responded to by Applicants. The specified informalities to claims 8, 24, and 30 are corrected herein by amendment.

Applicants respectfully request allowance of claims 1-33. Please feel free to call to discuss the patentability of the pending claims.

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